An Assessment of Acquisition Outcomes and Impact of Reforms & Initiatives

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2011 Assessment Made Observations On The Following

- Cost characteristics of the MDAP portfolio
- Timing and amount of knowledge achieved
- Progress of WSARA implementation
- Progress of DOD efficiency initiatives

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Cost Characteristics of DOD's Portfolio of Major Defense Acquisition Programs

08 to 10: Portfolio $ Investment Same, Programs Grew By a Net of Two

- 15 programs estimated at $77 billion **entered**
- 13 programs estimated at $174 billion **exited**

Portfolio status	Fiscal year 2008	Fiscal year 2010
Number of programs	96	98
Total p.anned investment	$1.6	$1.68 trillion
Funding expended	$834 billion	$968 billion
Fundin_ to com_ lete	$802 billion	$712 billion

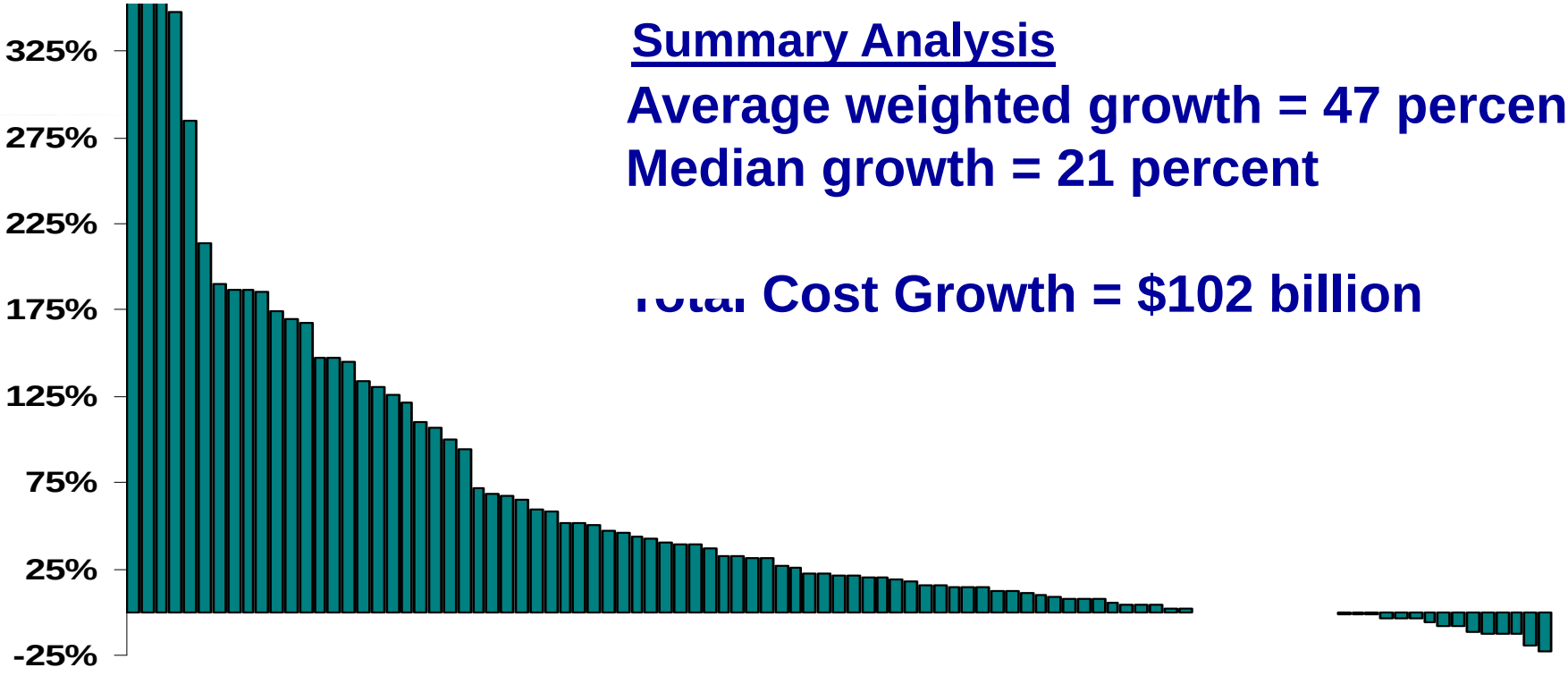
Source: GAO analysis of December 2007 and December 2009 Selected Acquisition Reports.

2yr/5yr/Baseline Trend: FY 2010 MDAP Portfolio Cost Growth Over Time

FY 2011 dollars	Last 2 years (2008 to 2010)	Last 5 years (2005 to 2010)	Since first full estimate (Baseline to 2010)
Increase in estimated RDT&E costs	$15 billion 5 percent	$29 billion 10 percent	$102 billion 47 percent
Increase in estimated procurement costs	$121 billion 11 percent	$186 billion 18 percent	$287 billion 31 percent
Increase in total acquisition cost	**$135 billion** **9 percent**	**$217 billion** **16 percent**	**$402 billion** **35 percent**
Average delay in delivering initial capabilities	**5 months** **8 percent**	**9 months** **13 percent**	**22 months** **30 percent**

Source: GAO analysis of December 2009 Selected Acquisition Reports.

RDT&E Percentage Cost Growth From Baseline per MDAP



Summary Analysis

Average weighted growth = 47 percent

Median growth = 21 percent

Total Cost Growth = $102 billion

Note: Four programs have greater than 325 percent RDT%E cost growth. The four programs that exceed 325% range from 348% to 3633%.

Impact of Quantity INCREASES on Program and Portfolio Cost

- 43 MDAPS had increased quantities since starting
  - Total quantities for all increased by 73%
  - Overall total program cost increased by 100%
  - A “calculated” cost for increased quantities is $175B
  - The **actual** cost increase was $258B

  - **The difference--$83B--can be thought of as inefficient cost growth or “bad” cost growth**

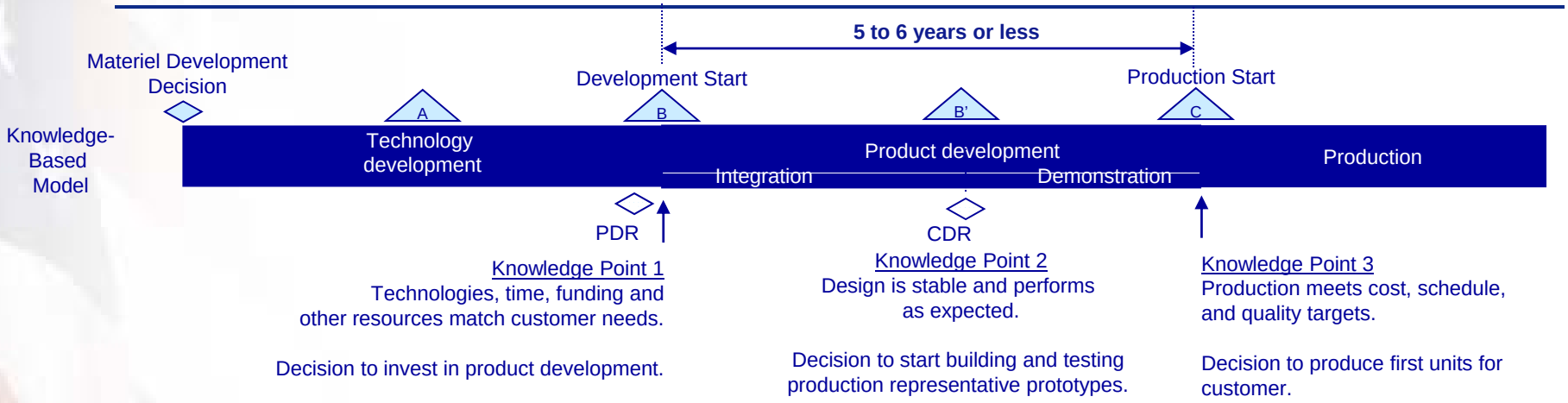
Impact of Quantity DECREASES on Program and Portfolio Cost

- 30 MDAPS had decreased quantities since starting
  - Total proc cost actually increased for 13 programs
  - A "**calculated savings"** for decreased Q is $197B
  - The actual cost **INCREASED** by $2B

  - **The difference--$199B—can be thought of as lost buying power**

Timing and Amount of Technology, Design, and Manufacturing Knowledge Achieved

A Knowledge-Based Approach is Key to Successful Program Outcomes



- Model provides framework for incremental, time certain (development constrained to 5 to 6 years or less), and knowledge-based approach to weapon system acquisitions.
- Success requires structured, disciplined application and adherence to model.
- Knowledge points align with key investment inflection points.
- Controls are in place for decisions makers to measure progress against specific criteria and ensure managers capture key knowledge before moving to next phase.

Focus on Several Knowledge-Based Practices at Development Start

Knowledge-based practices at development start Knowledge point 1	**IAMD**
Mature all critical technologies	○
Hold system requirements review	●
Hold system functional review	●
Hold preliminary design review	○[a]
Constrain development phase to 6 years or less	○

● Practice implemented by program

○ Practice not implemented by program

Source: GAO analysis of DOD data.

Design Knowledge Increasing, but Prototypes Are Not Being Used

Knowledge-based practices at design review Knowledge point 2	AB3	FAB-T	CH-53K	GPS IIIA	Increment 1 E-IBCT	JPALS	JTRS AMF	PATRIOT/ MEADS CAP Fire Unit	Reaper
Mature all critical technologies	○	○	○	●	○	○	○	●	●
Release at least 90 percent of design drawings	○	○	●	●	○	●	●	●	●
Test a system-level integrated prototype	○	○	○	○	○	○	○	○	
Use a reliability growth curve	○	○	○	○	●	●	○	●	○
Conduct producibility assessments to identify manufacturing risks for key technologies	●		●	●	●		●	●	
Complete failure modes and effects analysis	●	●	●	●	●		●	●	

● Practice implemented by program

○ Practice not implemented by program

Practice not applicable or information not available

Source: GAO analysis of DOD data.

Programs Are Identifying Processes, But Not Demonstrating Them Pre-Prod

Knowledge-based practices at production decision Knowledge point 3	AB3	C-130 AMP	E-2D AHE	ER/MP UAS	GPS IIIA	Increment 1 E-IBCT	NMT	P-8A	SM-6	WIN-T Increment 2
Mature all critical technologies	●	●	●	○	●	○	●	●	●	●
Release at least 90 percent of design drawings	●	●	●	●		○		●	○	
Identify key product characteristics	●	●	○	●		●	●	●	●	●
Identify critical manufacturing processes	●	●	●	●	●	●	●	●	●	
Demonstrate critical processes are in statistical control	○	○	○	○	○	○	○	○	○	
Demonstrate critical processes on a pilot production line	●	●	●	●	○	●	●	●	●	
Test a production-representative prototype	●	●	●	○	○	○	●	○	○	●

● Practice implemented by program

○ Practice not implemented by program

Practice not applicable or information not available

Source: GAO analysis of DOD data.

Progress of Acquisition Reforms and Efficiency Initiatives

New DOD Policies Could Improve Outcomes

- **More discipline and up-front knowledge in early acquisition phases could put programs on more stable footing**
  - Early Materiel Development Decision required for all programs.
  - Preference for incremental development, with baselines for each increment.
  - PDR required before system development start.
  - Competitive prototyping required as part of technology development phase.
  - Configuration Steering Boards established to control requirements creep.
  - Acquisition strategies required to describe measures taken to ensure competition throughout the program lifecycle.
  - Trade-offs among cost, schedule, and performance objectives required at Milestone B approval to ensure affordability.

Programs Have Begun to Implement DOD's Revised Acquisition Policies

- **Programs in our 2011 assessment have begun to implement acquisition reforms that could improve cost and schedule outcomes.**
  - Competitive prototyping – 9 of 14 pre-MDAPs planned to develop competitive prototypes prior to Milestone B.
  - Early systems engineering – 10 pre-MDAPs in our assessment have already scheduled a preliminary design review before Milestone B.
  - Trade-offs – 7 of 14 programs reported making major cost, schedule, and performance tradeoffs before development start
  - Competition – 6 of 14 programs are planning to incorporate competition into their acquisition strategy after Milestone B
- **Several programs in our 2011 assessment still have not reported holding a configuration steering board meeting.**
  - 12 of 40 programs in our assessment reported never having held a configuration steering board.
  - 5 programs presented de-scoping options to the board and 4 had those approved to help maintain cost and schedule.

DOD Efficiency Initiative Can Help Further Reforms

- **Sets shorter programs timelines –** Requirements and proposed schedules must be consistent; justification for proposed program schedule is required before a program can proceed.
- **Treats affordability as a requirement –** Affordability is to be treated like a key performance parameter at Milestone A.
- **Stresses the use of systems engineering analysis –** At Milestone B, requires the presentation of a systems engineering tradeoff analysis showing how cost varies with schedule and design parameters.
- **Emphasizes competition throughout the program lifecycle –** Requires the presentation of a competitive strategy at each program milestone
- **Recommends portfolio analyses to eliminate redundancies –** Conduct portfolio reviews at the joint and Department-wide level to identify redundancies, as well as among smaller programs.

END